```python
#!/usr/bin/env python3
# -*- coding: utf-8 -*-
"""
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"""

import numpy as np


np.random.seed(0)

avg_arrival_rate = 1  # average number of arrivals per minute
avg_service_rate = 1.5  # average number of customers served per
minute
num_customers = 5  # number of customers

service_times = [] # Initialize lists to store service times

inter_arrival_times = np.random.exponential(scale=1/
avg_arrival_rate, size=num_customers)

# Initialize lists for arrival times and finish times
arrival_times = np.cumsum(inter_arrival_times)
finish_times = np.zeros(num_customers)

service_times = np.random.exponential(scale=1/avg_service_rate,
size=num_customers)

# Initialize lists for storing waiting times and total times
wait_times = np.zeros(num_customers)
total_times = np.zeros(num_customers)


for i in range(num_customers):
    # Calculate finish time for each customer
    finish_times[i] = max(arrival_times[i], finish_times[i-1]) +
service_times[i]
    # Calculate total time spent in the system by each customer
    total_times[i] = finish_times[i] - arrival_times[i]
    # Calculate time spent waiting before being served (time spent
in the queue)
    wait_times[i] = total_times[i] - service_times[i]


for i in range(num_customers):
    print("Customer", i+1, "spent", total_times[i], "minutes in the
system.")




Ls = np.mean(total_times)  # Expected number of customers in the
```

```python
system
Lq = np.mean(wait_times)  # Expected number of customers waiting in
line
total_service_time = np.sum(service_times)  # Total service time
total_time_elapsed = finish_times[-1]  # Total time elapsed

utilization = total_service_time / total_time_elapsed


print('Output:','\n',
      'Time Between Arrivals:', np.mean(inter_arrival_times), '\n',
      'Service Time (1/µ):', np.mean(service_times), '\n'
      'Utilization (c):', utilization, '\n',
      'Expected wait time in line (Wq):', np.mean(wait_times), '\n',
      'Expected time spent on the system (Ws):',
np.mean(total_times), '\n',
      'Expected number of customers in line (Lq):', Lq, '\n',
      'Expected number of clients in the system (Ls):', Ls, '\n ')
```